

**LISTING OF CLAIMS**

- 1 1. (previously amended) In a network device configured by a configuration command, a  
2 method for automatically re-constructing said configuration command based on data stored  
3 in a configuration database during parsing and processing of the configuration command by  
4 the network device, the method comprising the steps of:
  - 5 creating and storing a linear command regeneration template that includes at least one  
6 linear node template in a memory, each linear node template corresponding to  
7 a command element in said configuration command; and
  - 8 regenerating said configuration command based on said linear command regeneration  
9 template and based on data from the configuration database.
- 1 2. (previously amended) The method of Claim 1 wherein the step of creating and storing  
2 a linear command regeneration template further comprises:
  - 3 storing a begin option node template in said at least one linear node template.
- 1 3. (previously amended) The method of Claim 1 wherein the step of creating and  
2 storing a linear command regeneration template further comprises:
  - 3 storing a next option node template in said at least one linear node template.
- 1 4. (previously amended) The method of Claim 1 wherein the step of creating and  
2 storing a linear command regeneration template further comprises:
  - 3 storing an end option node template in said at least one linear node template.
- 1 5. (previously amended) The method of Claim 1 wherein the step of creating and  
2 storing a linear command regeneration template further comprises:
  - 3 storing a begin option node template, a next option node template, and an end option  
4 node template in said at least one linear node template.
- 1 6. (previously amended) The method of Claim 1 wherein the step of regenerating said  
2 configuration command further comprises the step of:

3 filtering said linear command regeneration template to locate at least one linear node  
4 template.

1 7. (previously amended) The method of Claim 1 wherein the step of regenerating said  
2 configuration command further comprises the step of:

3 scanning the linear command regeneration template to find a begin option node  
4 template, said begin option node template including an identification.

1 8. (Cancelled)

1 9. (previously amended) The method of Claim 7, wherein the step of regenerating said  
2 configuration command further comprises the steps of:

3 scanning the linear command regeneration template to find an end option node  
4 template that includes said identification of the begin option node template.

1 10. (previously amended) The method of Claim 6 wherein the step of regenerating said  
2 configuration command further comprises the step of:

3 passing said filtered linear node template from the linear command regeneration  
4 template to an evaluate branches process.

1 11. (previously amended) The method of Claim 10 further comprising the step of:  
2 evaluating at least one branch in said filtered linear node template from the linear  
3 command regeneration template by said evaluate branches process.

1 12. (previously amended) The method of Claim 10 further comprising the step of:  
2 finding a branch in said filtered linear node template.

1 13. (previously amended) The method of Claim 12, further comprising the step of:  
2 validating said branch based on data from said configuration database.

1 14. (currently amended) A computer-readable medium carrying one or more sequences  
2 of instructions for automatically re-constructing a network device configuration command  
3 that was used to configure a network device based on data stored in a configuration database,

4 wherein parsing and processing of the configuration command by the network device  
5 resulted in storage of data in the configuration database, and wherein execution of the  
6 sequences of instructions by one or more processors causes said one or more processors to carry  
7 out the steps of:

8 creating and storing a linear command regeneration template that includes at least one  
9 linear node template in a memory, each linear node template corresponding to  
10 a command element in said configuration command; and  
11 regenerating said configuration command based on said linear command regeneration  
12 template and based ~~one on~~ data from the configuration database.

1 15. (previously amended) The medium of Claim 14 wherein said one or more sequences  
2 of instructions for creating and storing a linear command regeneration template further  
3 comprises one or more sequences of instructions for:  
4 storing a begin option node template in said at least one linear node template.

1 16. (previously amended) The medium of Claim 14 wherein said one or more sequences  
2 of instructions for creating and storing a linear command regeneration template further  
3 comprises one or more sequences of instructions for:  
4 storing a next option node template in said at least one linear node template.

1 17. (previously amended) The medium of Claim 14 wherein said one or more sequences  
2 of instructions for creating and storing a linear command regeneration template further  
3 comprises one or more sequences of instructions for:  
4 storing an end option node template in said at least one linear node template.

1 18. (currently amended) The medium of Claim 14 wherein said one or more sequences  
2 of instructions for creating and storing a linear command regeneration template further  
3 comprises one or more sequences of instructions for:  
4 storing a begin option node template, a next option node template, and an end option  
5 node template in said at least one linear node template.

6 19. (previously amended) The medium of Claim 14 wherein said one or more sequences  
7 of instructions for regenerating said configuration command further comprises one or more  
8 sequences of instructions for:

9 filtering said linear command regeneration template to locate at least one linear node  
10 template.

1 20. (previously amended) The medium of Claim 14 wherein said one or more sequences  
2 of instructions for regenerating said configuration command further comprises one or  
3 more sequences of instructions for:

4 scanning the linear command regeneration template to find a begin option node  
5 template, said begin option node template including an identification.

1 21. (cancelled)

1 22. (previously amended) The medium of Claim 20, wherein said one or more sequences  
2 of instructions for regenerating said configuration command further comprises one or  
3 more sequences of instructions for:

4 scanning the linear command regeneration template to find an end option node  
5 template that includes said identification of the begin option node template.

1 23. (previously amended) The medium of Claim 19 wherein the one or more sequences  
2 of instructions for regenerating said configuration command further comprises one or  
3 more sequences of instructions for:

4 passing said filtered linear node template from the linear command regeneration  
5 template to an evaluate branches process.

1 24. (previously amended) The medium of Claim 23 further comprising one or more  
2 sequences of instructions for:

3 evaluating at least one branch in said filtered linear node template from the linear  
4 command regeneration template by said evaluate branches process.

1 25. (previously amended) The medium of Claim 23 further comprising one or more  
2 sequences of instructions for:  
3 finding a branch in said filtered linear node template.

1 26. (currently amended) The medium of Claim 25 further comprising one or more  
2 sequences of instructions for:  
3 validating said branch based ~~one~~ on data from said configuration database.

1 27-39 (cancelled)

1 40. (previously amended) In a network device configured by a configuration command,  
2 an apparatus for automatically re-constructing said configuration command based on data  
3 stored in a configuration database during parsing and processing of the configuration  
4 command by the network device, the apparatus comprising:

5 means for creating and storing a linear command regeneration template that includes  
6 at least one linear node template in a memory, each linear node template  
7 corresponding to a command element in said configuration command; and  
8 means for regenerating said configuration command based on said linear command  
9 regeneration template and based on data from the configuration database.

1 41. (previously amended) The apparatus of Claim 40 wherein said means for creating  
2 and storing a linear command regeneration template further comprises:  
3 means for storing a begin option node template in said at least one linear node  
4 template.

1 42. (previously amended) The apparatus of Claim 40 wherein said means for creating  
2 and storing a linear command regeneration template further comprises:  
3 means for storing a next option node template in said at least one linear node  
4 template.

1 43. (previously amended) The apparatus of Claim 40 wherein said means for creating  
2 and storing a linear command regeneration template further comprises:

3 means for storing an end option node template in said at least one linear node  
4 template.

1 44. (previously amended) The apparatus of Claim 40 wherein said means for creating  
2 and storing a linear command regeneration template further comprises:

3 means for storing a begin option node template, a next option node template, and an  
4 end option node template in said at least one linear node template.

1 45. (previously amended) The apparatus of Claim 40 wherein said means for  
2 regenerating said configuration command further comprises:

3 means for filtering said linear command regeneration template to locate at least one  
4 linear node template.

1 46. (previously amended) The apparatus of Claim 45 wherein said means for filtering  
2 said linear command regeneration template to locate comprises:

3 means for scanning said linear command regeneration template to find a begin option  
4 node template, said begin option node template including an identification.

1 47. (currently amended) A method of automatically re-constructing a network device  
2 configuration command based on configuration data stored in the network device, wherein  
3 parsing and processing of the configuration command resulted in storage of the configuration  
4 data, wherein the command comprises at least one command element that can have a  
5 plurality of values, the method comprising the computer-implemented steps of:

6 creating and storing at least one linear node in a parse tree for representing said at  
7 least one command element, wherein said linear node comprises a begin  
8 option node having a single entrance; a next option node coupled to said being  
9 begin option node having a single entrance; and an end option node coupled to  
10 said being begin option node wherein said end option node has a single exit;

11           creating and storing a linear command regeneration template in a memory, wherein  
12           the linear command regeneration template comprises information identifying  
13           how to regenerate a configuration command; and  
14           regenerating the command based on the linear command regeneration template and  
15           based on data from said configuration data stored in the network device.

1   48. (previously presented) The method of Claim 47, wherein creating and storing at least  
2   one linear node further comprises connecting a plurality of branches to said begin option  
3   node.

1   49. (previously presented) The method of claim 48 wherein each branch in said plurality  
2   of branches represents a different value of said at least one command element.

1   50. (previously presented) The method of claim 48, wherein each branch is associated  
2   with a next option node.

1   51. (previously presented) The method of claim 47, wherein said parse tree further  
2   comprises a binary node.

1   52. (currently amended) The method of claim 47, wherein said command includes  
2   another command element that can have a plurality of values, said method further comprising  
3   representing said another command element by another linear node in said parse tree wherein  
4   said another linear node comprises a second being begin option node having a single entrance  
5   connected to said exit of said end option node, a second next option node coupled to said  
6   another begin option node, and a second end option node coupled to said another begin  
7   option node wherein said another end option node has a single exit.

1   53. (previously presented) A method of automatically regenerating a network device  
2   configuration command based on configuration data stored in the network device, wherein  
3   parsing and processing of the configuration command resulted in storage of the configuration  
4   data, the method comprising the computer-implemented steps of:

5 creating and storing a linear command regeneration template including a linear node  
6 template, wherein the linear node template comprises a begin option node  
7 template, a next option node template, and an end option node template;  
8 regenerating the configuration command based on the linear command regeneration  
9 template and based on data from a database, by:  
10 scanning the linear command regeneration template to find an end option node  
11 template that includes an identification of the begin option node template;  
12 passing the linear node template from the linear command regeneration template to an  
13 evaluate branches process;  
14 evaluating at least one branch in the linear node template from the linear command  
15 regeneration template by the evaluate branches process;  
16 finding a branch in the linear node template; and  
17 validating the branch using the configuration data stored in the network device.